IPIECA

Water Visioning

Relevance to EU Refineries

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CONCAWE Symposium

March 2017

THE GLOBAL OIL AND GAS INDUSTRY ASSOCIATION FOR ENVIRONMENTAL AND SOCIAL ISSUES

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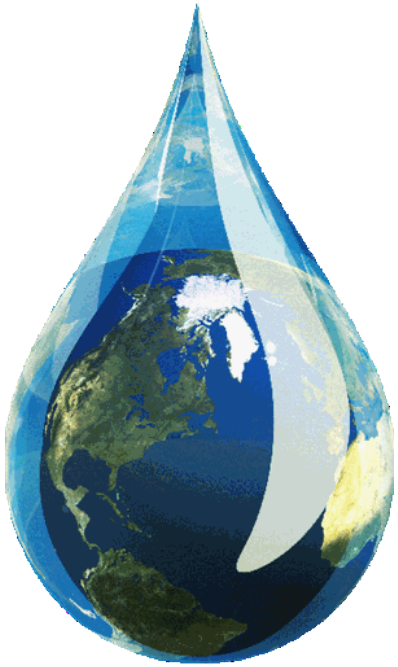
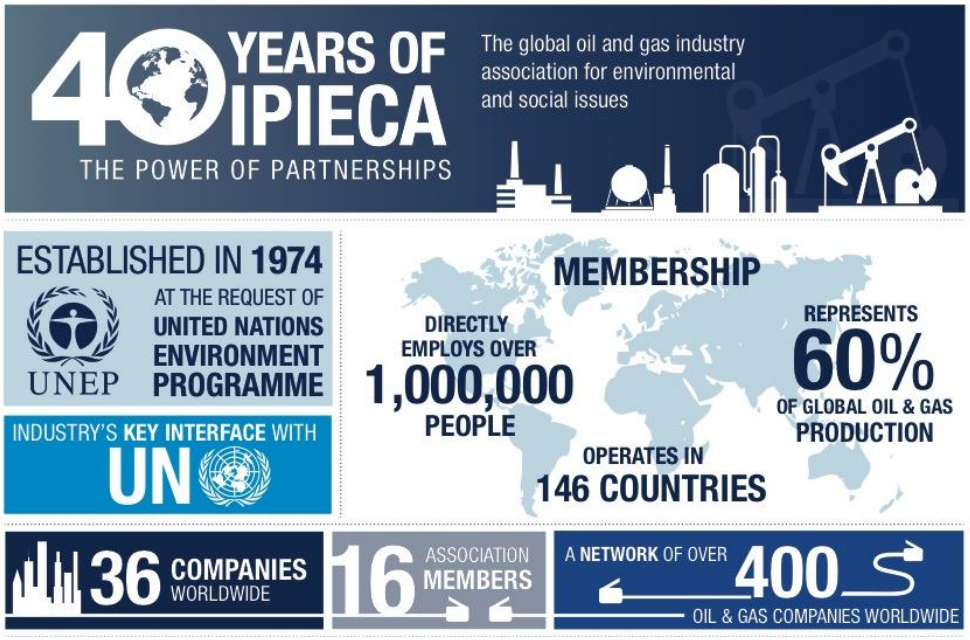
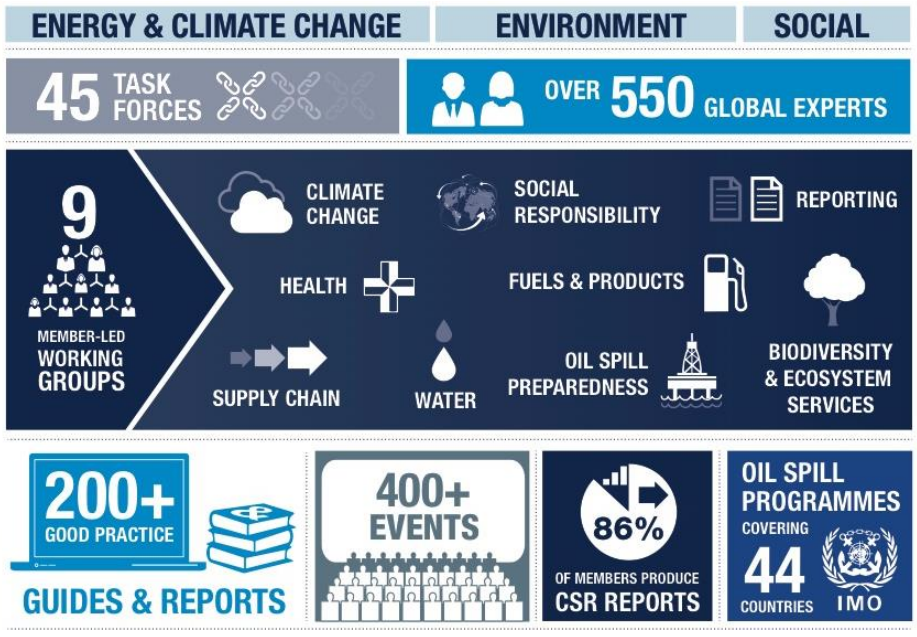


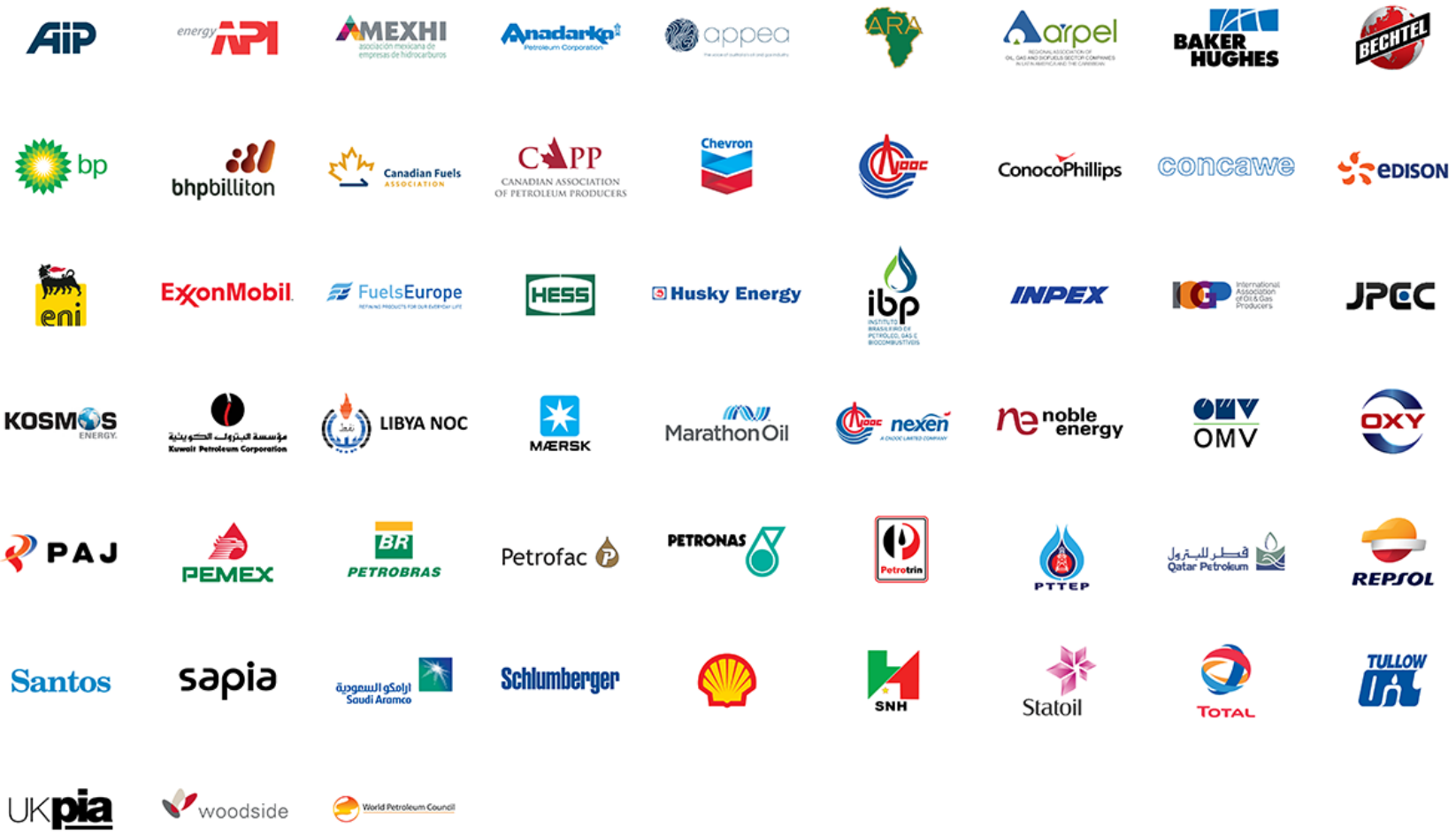
IPIECA Overview

- IPIECA Vision: *An oil and gas industry that successfully improves its operations and products to meet society's expectations for environmental and social performance.*
- Global oil and gas association for environmental and social issues
- Formed in 1974 following the launch of UNEP
- The only global association involving both the upstream and downstream oil and gas industry
- Membership covers over half of the world's oil production





IPIECA members



IPIECA's Strategic Themes

CLIMATE & ENERGY

Oil and gas industry's role in meeting the world's growing energy needs and addressing climate change risks

ENVIRONMENT

Oil and gas industry responding to environmental challenges through risk management and innovation

SOCIAL

Maximising the oil and gas industry's contribution to social and economic development

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Water Working Group

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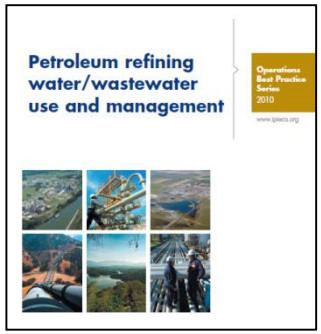
Water Working Group

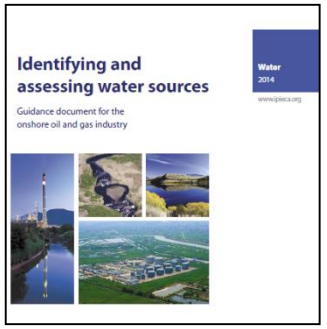
Timeline 2008-2014



2010
Refining Water Guidance

Global watertool©

2011
Global Water Tool for Oil & Gas



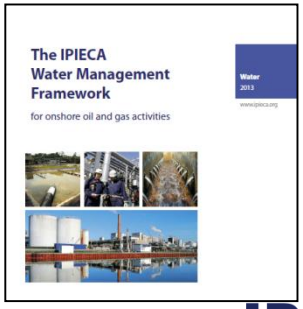
2014
Water Sourcing Guidance

2008
Water Task Force Formed

2011
Working Group Formed

2012
GEMI Local Water Tool

2013
Water Management Framework



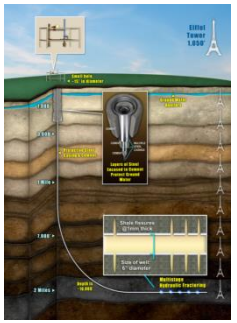
Water Working Group

Timeline 2014- onwards

2014
Review of
Risk Tools

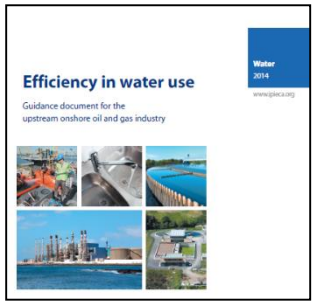
2015
V2 Global Water
Tool for Oil & Gas

2015/16
2030 Visioning

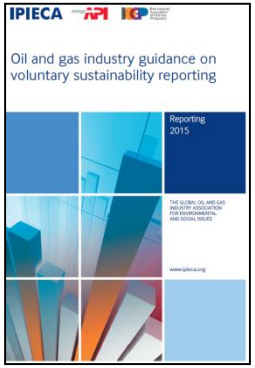


2016
Shale Development
Briefing (in development)

2014
Efficiency
Guidance



2015
Sustainability
Reporting



2016
Risk E-learning
Training

2016
Water Valuation
(members only)

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IPIECA's Water Visioning

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IPIECA's Water Visioning

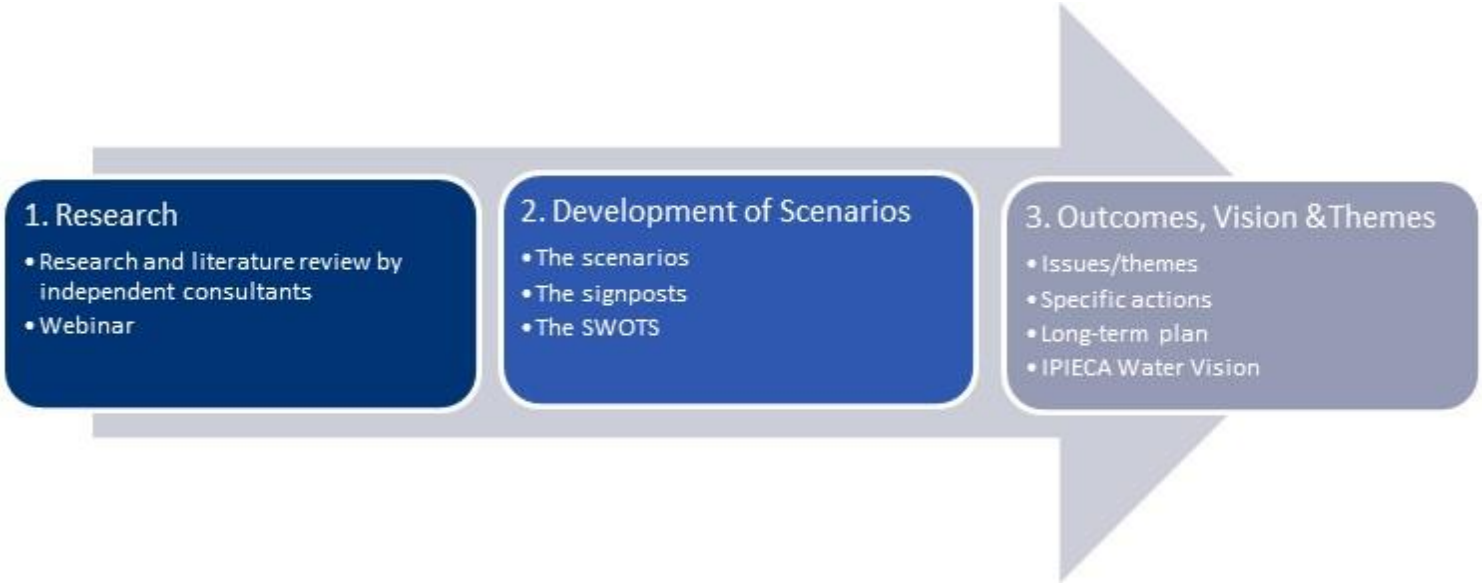
Drivers

- The availability of water resources is changing: increasing demand, decreasing quality, possible changes related to the changing climate
- Regulations are tightening on the allocation and protection of the quality water resources
- Increasingly seen as a **global** issue, though water quality and quantity issues are generally **local**.
- A water vision is necessary to guide the long term plan for water management at IPIECA.

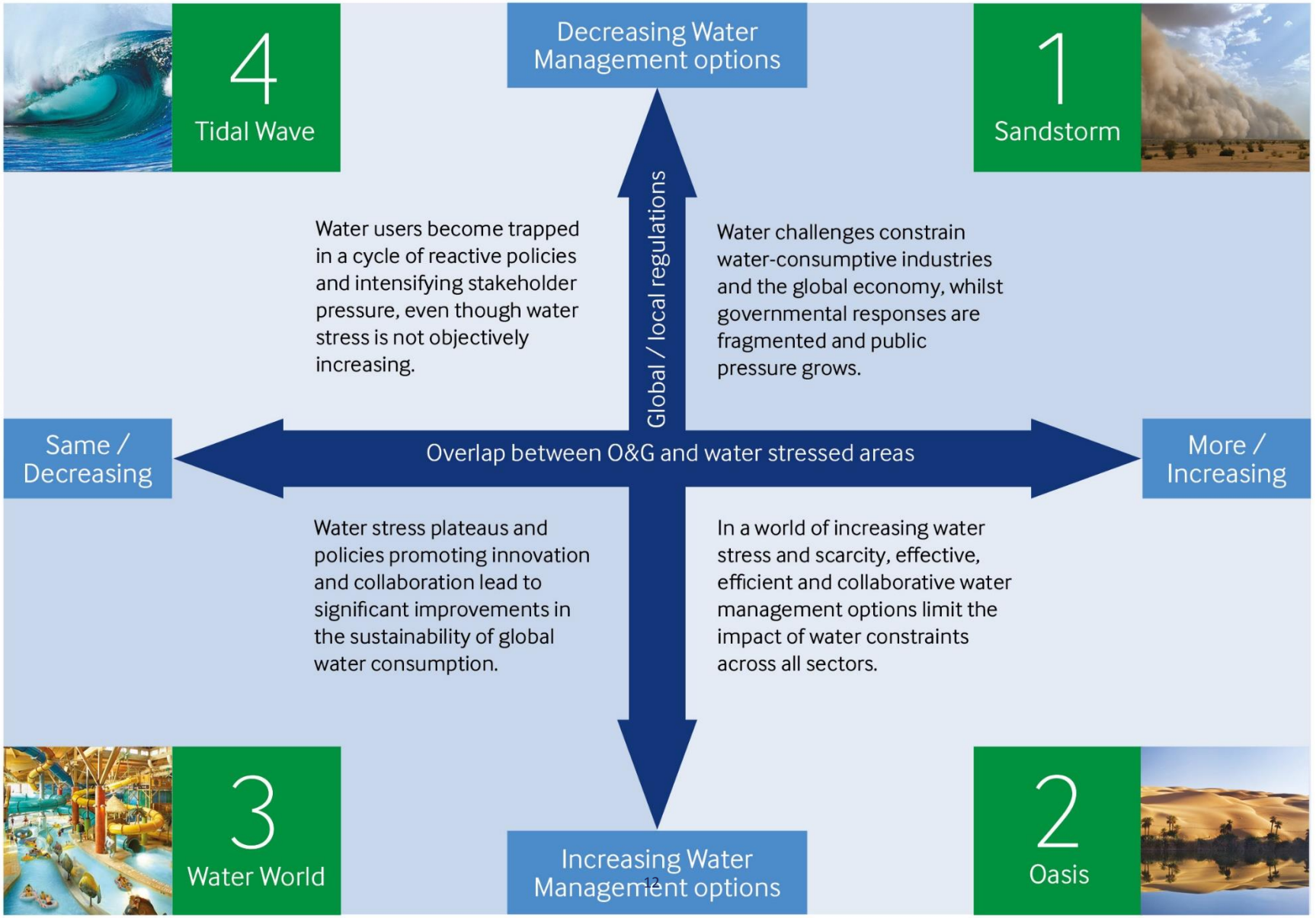
IPIECA's Water Visioning

Aim: *Implement a structured, scenario based process to build a long term vision (to 2030) for water management in the oil and gas sector, supported by long term themes for IPIECA to act on.*

Process

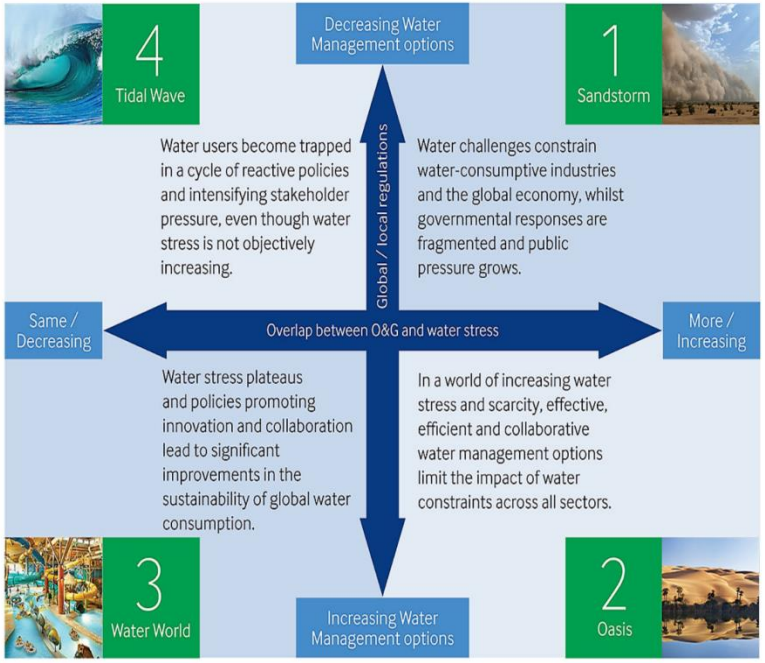


IPIECA's Water Scenarios



Development of scenarios

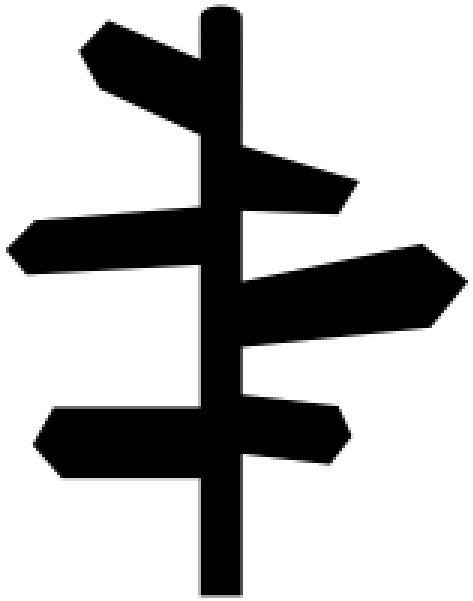
- It is likely that each scenario will simultaneously exist across the world in 2030
- Each region will exhibit different aspects of each scenario depending upon, physical, environmental, socio-economic and regulatory conditions, **including Europe**
- A long term plan for IPIECA to meet the future challenges, therefore, needs to be **flexible and responsive** to emerging global, regional and local challenges.



2. Development of signposts

Climate change

SDGs



Technology/ Innovation

Population change

O&G

Stakeholder concerns

Water pricing

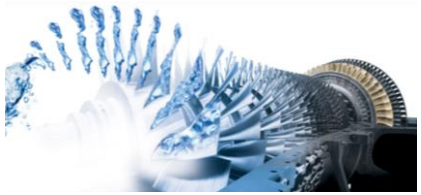
Outcomes: vision and themes

Themes

Stakeholder engagement and partnerships

Tracking policy and regulatory trends

Climate change adaptation and resilience



Industry seen as 'part of the solution'

Enhanced reporting and disclosure

Technology and innovation

Water price and value

IPIECA to provide more regional/local scale perspective

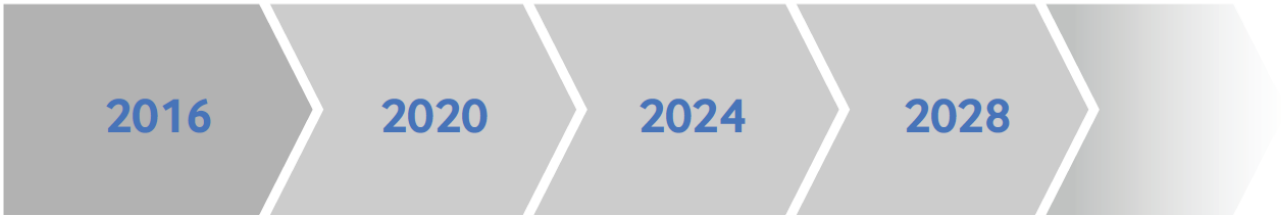
3. Outcome: vision and themes

Long-term plan

Three key elements:

- An IPIECA Water **Vision** guiding the plan
- A **systematic review of the signposts** to inform adjustments to the direction of IPIECA's long-term plan
- Actions that may be **relevant to all scenarios, and scenario specific actions** that will be defined and fed into annual business planning,

Visioning work and
IPIECA Water Vision



IPIECA'S STRATEGIC MILESTONES

3. Outcomes: vision and themes

IPIECA's Water Vision

"By promoting and communicating progress in responsible and integrated water management, IPIECA leads the oil and gas industry through engaging in proactive and collaborative approaches to meet the existing and future water challenges."

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Implications for EU Refineries

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Implications for EU

Against Identified Themes

Stakeholder engagement and partnerships

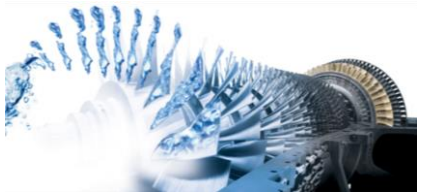
Strategic themes and regional outlook

Tracking policy and regulatory trends

Key element of CONCAWE's role

Climate change adaptation and resilience

Impact in Southern Europe potentially greatest – Temperature and Precipitation patterns



Industry seen as 'part of the solution'

Water reuse and recycling could become BAT

Enhanced reporting and disclosure

Increased investor, NGO and societal pressures will drive change

Technology and innovation

Minimise, reuse and recycling.
Influencing our supply chain

Water price and value

The price and value of, as well as the cost of water will rise

IPIECA to provide more regional/local scale perspective

Engagement with regional associates such as CONCAWE

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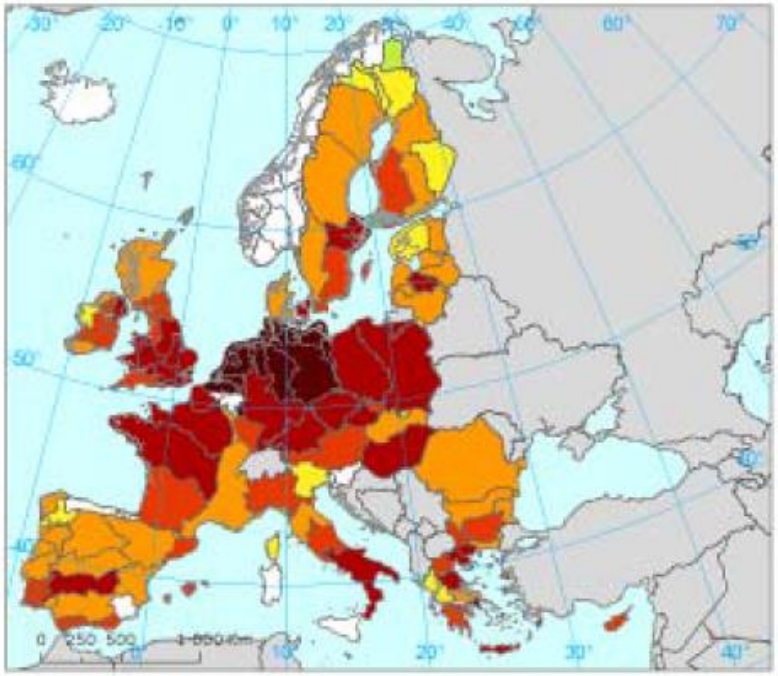
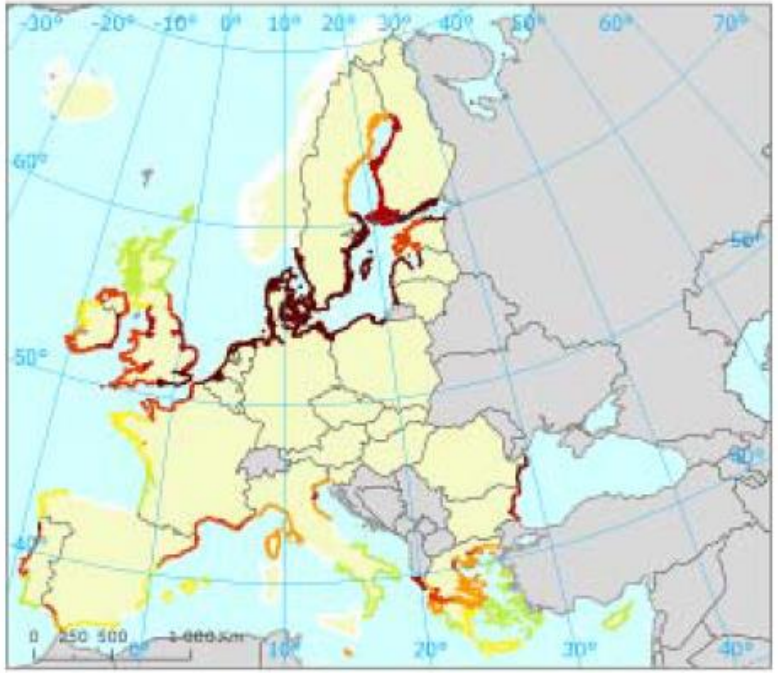
Managing Demand for Water – Cost & Reuse

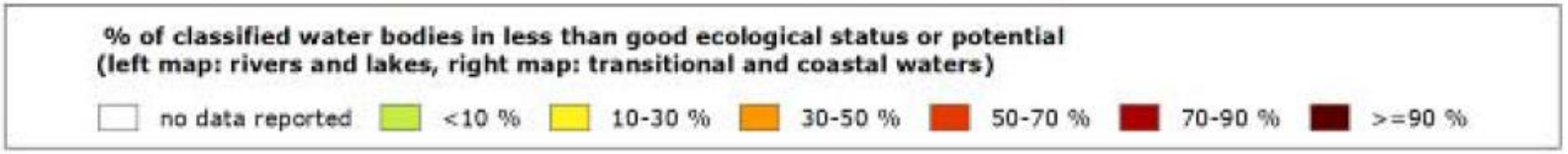
EU Water Framework Directive Blueprint

Over-abstraction

- Ecological low flows undefined in many river basins
- Water quantity information needs improvement





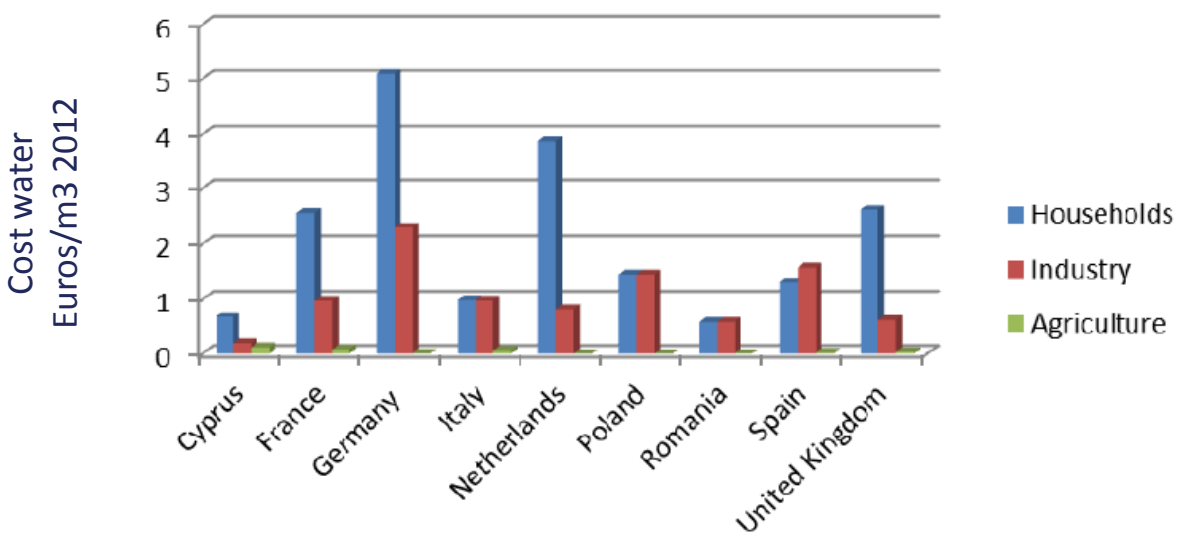


Source: EC,7/2014, A Blueprint to Safeguard Europe's Water Resources, Impact Assessment

Managing Demand for Water – Cost & Reuse

EU Water Framework Directive Blueprint

- 50% of EU water basins will be under water stress or scarcity by 2030
- Weak implementation of pricing policy across EU (WDF Article 9)
- Promotion of efficiency in water use required:
- Sector-specific target setting e.g. set BAT targets on water consumption
- Pricing policy (metering, cost recovery, put right price on water, water trading)
- Water re-use schemes – promote, development of standards



Source: EC,7/2014, A Blueprint to Safeguard Europe's Water Resources, Impact Assessment

- Will the cost of water rise?
- Align with domestic charges?
- Will the rises make recycling economic?

Conclusions

- The Visioning work facilitated the development of themes and focussed strategic plans
- It allows IPIECA to move from a rather reactive position to a more proactive and anticipatory one.
- Water resource availability faces an uncertain future in many parts of the world
- Rise in EU to demand management approaches to safeguard environment and society including more water reuse and recycling
- IPIECA has a proactive role to play, aiming to be more anticipatory.
- Engagement between IPIECA and CONCAWE can help manage the future water constraints

Questions

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Visioning – Back Up Slides

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Limitations

- Scenarios do not include the impacts of the changing energy landscape e.g. low carbon future, increased biofuels
- The two uncertainty axes (water stress and regulations) are not entirely independent
- Plausibility of different scenarios
- Developing actions to meet the challenges of the scenarios brought into focus the remit of IPIECA